

A Study on Pricing and Service Strategies of Xianyu Platform Based on Two-Sided Market Theory

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Abstract. With the rapid development of the digital economy, second-hand trading platforms have evolved into typical two-sided market structures. However, as a leading player in the industry, Xianyu is facing challenges such as imbalanced pricing mechanisms, difficulties in balancing buyer and seller interests, and insufficient coordination between pricing and service offerings. These factors significantly undermine the platform's competitiveness. This paper focuses on Xianyu's pricing and service strategies based on two-sided market theory, aiming to redress the imbalance in platform participants' interests through theoretical and empirical analysis. The study integrates literature review, case analysis, and game-theoretic approaches. It examines Xianyu's two-sided market features and dual-user structure, develops a differentiated pricing model based on the Rochet-Tirole framework, and proposes specific service optimization measures targeting users' experiences in purchasing, transaction processing, and after-sales support. Findings indicate that differentiated pricing represents the optimal solution for aligning with Xianyu's two-sided market features. By implementing a strategy of "protective pricing for individual sellers and tiered fees for professional sellers," combined with end-to-end service improvements, the platform can effectively balance the interests of both sides and stimulate network effects. The research ultimately confirms that the synergy between pricing and service strategies is key to enhancing platform competitiveness, offering practical operational insights for second-hand trading platforms.

Keywords: Two-sided market theory, Xianyu platform, Differential pricing, Service strategy, C2C second-hand trading

1. Introduction

With the rapid growth of the digital economy, online shopping has gradually emerged. When users are unable to pay the original price of the product, second-hand transactions have developed, especially online second-hand transactions. Xianyu, as the leading C2C second-hand trading platform in China, connects a large number of buyers and sellers, forming a typical two-sided market structure [1]. Currently, Xianyu faces problems with its pricing mechanism and thus fails to balance the interests of buyers and sellers. Existing research mostly focuses on unilateral pricing or static service strategies, but lacks a systematic analysis of the balance between the two user sides and the synergy between pricing and service. The research in this paper can fill the gap in the

research on pricing and service synergy in two-sided markets and provide evidence for the improvement of theoretical research in the second-hand trading market. It can also provide solutions to the issue of interest balance for the Xianyu platform and enhance its competitiveness, as well as offer some reference operating models for other second-hand stores apart from Xianyu.

This paper adopts a literature review and case analysis to clarify the bilateral market characteristics and existing problems of the Xianyu platform. Secondly, it uses a game analysis method to construct a differentiated pricing model and propose service optimization strategies. Finally, it verifies the synergy effect of pricing and service strategies through theoretical derivation, and then puts forward operational suggestions. The research results of this paper can provide practical operational suggestions for Xianyu and similar second-hand trading platforms, and offer useful references for the application of two-sided market theory in C2C second-hand trading scenarios.

2. Literature review

2.1. Theoretical meaning of bilateral market

A bilateral market is a market structure that connects two heterogeneous user groups through a platform, facilitating their interaction and creating value [2]. The change in transaction volume is determined by price-structure non-neutrality. When the total cost is fixed, the change in the allocation of costs on both sides will affect the transaction volume, which is significantly different from the core determination mechanism of the unilateral market. A two-sided market exhibits three defining characteristics: first, bilateral heterogeneity and mutual dependence; second, cross-network externality; and third, platform intermediation and rule governance [3].

Based on this, bilateral markets follow four key pricing principles:

Cross-subsidization: Implement low prices or free services for users with price sensitivity and high demand elasticity, and charge merchants with higher revenues and lower demand elasticity to achieve profitability [4];

Price structure takes precedence over price level—when total cost is fixed, a reasonable allocation of the two-sided price structure is more conducive to maximizing transaction volume and profits; Pricing should be based on elasticity and externality: Lower the pricing for the party with high demand elasticity and strong network externality to stimulate the expansion of user scale;

Fee model combination: platforms can use a mix of registration fees, transaction fees, and value-added service fees, to optimize platform revenue and the willingness of both sides to participate.

2.2. Bilateral market pricing and service theoretical foundation

The theoretical foundation of bilateral market pricing is the Rochet-Tirole model. In a bilateral market, the platform serves both sellers and buyers simultaneously to prevent users' value and participation intention from being highly dependent on the scale and quality of the other party's users [5]. The three main characteristics of bilateral market pricing are: cross-network externality, non-neutral pricing, and multi-ownership behavior. Cross-network externality manifests as a larger buyer scale attracting more sellers; non-neutral pricing emphasizes that the price structure is more decisive than the total price level; multi-ownership behavior refers to the fact that users can simultaneously use multiple platforms, which requires the platform to enhance user stickiness through pricing and services. One core pricing principle is asymmetric pricing, which offers lower prices to the party with high price elasticity and strong cross-side network externality contribution,

and charges higher fees to the party with low elasticity and high willingness to pay. For example, early e-commerce platforms offered free services to buyers while charging commissions to sellers. The second core pricing principle is dynamic pricing, whose core logic lies in dynamically adjusting prices based on real-time supply and demand, time, space, and product attributes, thereby balancing bilateral interests. The third core pricing principle is access rights pricing, where the platform does not directly sell goods but instead charges users platform fees and service fees, etc.

2.3. Analysis of theory and practical scenarios

Xianyu, as a C2C platform for idle transactions between two parties, mainly deals with non-standard restricted idle items, which fully conforms to the core principles of a two-sided market. The core contradiction lies in the difficulty of pricing non-standard items, the lack of trust, the dispersion of supply and demand, and the low matching efficiency [6]. This requires balancing the free trading of individual users with the commercialization of the platform, thereby suppressing professional sellers and protecting individual sellers. The core pricing strategies of Xianyu that change the market's core are as follows: tilted pricing, dynamic pricing, and access-rights and value-added-service pricing. First, tilted pricing shifted from free to refined charging in the early stage, thereby balancing the two-sided interests. In the mature stage, it begins to charge in a refined manner, from basic charging to differentiated charging, and finally it charges for customer value-added services. Second, dynamic pricing mainly consists of AI-based market pricing and similar-item pricing. AI pricing is based on the platform's massive real transaction data to provide users with real-time price references, thereby solving the problem of no standard pricing for non-standard idle items. Regarding the same item comparison pricing, Xianyu uses the GSID same item search to enhance model inference, calculate reasonable prices for specific non-standard items and improve the pricing accuracy. Finally, the dynamic adjustment of supply and demand mainly focuses on the popularity of the product, and automatically adjusts the exposure and price weight according to the sales situation [7]. Finally, Xianyu's core service strategy revolves around supply-demand matching and reducing friction, including through algorithms, communities, and AI to improve the efficiency of precise supply-demand matching, reduce transaction friction, and through balancing both sides to maintain the C2C ecosystem's ecological governance services [8]. The ecological governance services are the key to resolving the conflicts of interests between both sides of Xianyu.

3. Analysis of the two-sided market characteristics of the Xianyu platform

Regarding the current operation status of the Xianyu platform, the following four points need to be understood. First: Scale. Xianyu currently has the largest number of monthly active users in the idle transaction sector. Second is commercialization and profitability. Xianyu's charging policy has evolved from free to comprehensive charging. In June 2023, it still charged 1% service fees to frequent and large-scale sellers, and in September 2024, it began charging 0.6% basic service fees to all sellers. Its revenue structure consists of transaction commissions, value-added services, inspection treasure service fees, and offline store commissions. In 2025, it was upgraded to a core section of Alibaba's China e-commerce group, alongside Taobao and Tmall. Third is services and ecosystem. Xianyu follows a full-chain AI system combined with offline expansion. Through AI, it provides professional services to users and integrates with offline circulation stores to create a circular economy loop. Fourth is traffic allocation. Currently, Xianyu mainly relies on paid traffic, supplemented by natural traffic, advocating real-time competition. The existing problems of Xianyu's two-sided user balance crisis and imbalance in the traffic allocation mechanism, as well as

the intensifying competition and substitution risks, need to be addressed. Regarding the two-sided user balance crisis, the key lies in the fact that professional sellers are squeezing out individual sellers and improper charging leads to dissatisfaction among individual sellers, which will result in a decrease in the willingness of individual sellers to post [1]. Xianyu's C2C ecosystem foundation is damaged; the monopoly of paid traffic, the reduction of natural traffic, and the efficiency of supply-demand matching are all undermined. Secondly, the main reason for the imbalance in the traffic allocation mechanism lies in the monopoly of paid traffic. In short, Xianyu is currently in a state where there is no exposure without payment. Finally, the development of emerging second-hand goods trading platforms such as Tuanjuan and Aiheci has brought challenges to Xianyu.

4. Pricing optimization on Xianyu

4.1. Differential pricing scheme

Second-hand platforms should not charge all sellers uniformly. Instead, they should implement differentiated pricing based on user types. In the theory of two-sided markets, the core mechanism for maximizing transaction volume of the platform can be summarized as "cross-subsidization" and "asymmetric pricing". The essential logic is that the platform uses a differentiated price structure to balance the supply and demand sides: On one hand, it implements low-price or even free strategies for price-sensitive parties, subsidizing them to attract large-scale participation and boost platform activity. These sellers aim to "replenish funds" and create space, with the goal of making a profit and being extremely sensitive to fees. They contribute the most core "vibrancy" and product diversity of Xianyu, and are the foundation of the C2C attribute of Xianyu. Therefore, implementing free or low-rate policies is to prevent user churn and protect the supply-side ecosystem of the platform [9]; On the other hand, it charges higher fees to the benefiting parties to cover costs and achieve profitability. These sellers make a living by earning price differences and have a willingness to pay. They should pay the "platform tax". In response to the tendency of excessive influx that leads to "Taobao-like" characteristics, increasing service rates can not only raise the operating threshold and inhibit excessive commercialization, but also create sustainable cash flow for the platform to cover high operating and technical costs, creating a sustainable cash flow. For these professional sellers, the platform can adopt normal charging plus tiered pricing. As for the buyer side, it remains permanently free, that is, buyers will always have 0 fees. This can ensure the scale of the demand side and maintain the cross-network effect.

4.2. Build and validate the pricing model based on the pricing model

To simplify the analysis, assume the platform is a monopolistically competitive one. Since Xianyu has a certain market dominance in the second-hand C2C sector, we assume that the buyer's price elasticity is extremely high, as second-hand buyers are highly sensitive to prices, which conforms to the actual market characteristics and has extremely high buyer price elasticity. To maintain the scale of the demand side, the platform offers free services to the buyers. Firstly, the sellers are divided into two categories: S1: individual low-frequency sellers; S2: professional high-frequency sellers. The more buyers there are, the higher the seller's revenue; the more sellers there are, the higher the buyer's utility. The platform implements differentiated rates p_1 and p_2 for the two types of sellers. The buyer's utility formula is:

$$U_b = pN_s V_b - F_b, U_s = pN_b(P - C) - F_s \quad (1)$$

Here, N_s denotes seller scale, N_b denotes buyer scale, p is the probability of successful matching between the buyer and the seller, V_b is the profit that the buyer gains from the transaction, and F_b is the access fee charged by the platform to the buyer. The utility formula for individual sellers is

$$U_{s1} = a_{s1} * N_b - c_{s1} - p_1 \quad (2)$$

a_{s1} denotes the buyer-side externality intensity for individual sellers, c_{s1} is the transaction cost of individual sellers, and p_1 is the rate charged by the platform to individual sellers. The utility formula for professional sellers is similar to that of individual sellers:

$$U_{s2} = a_{s2} * N_b - c_{s2} - p_2 \quad (3)$$

a_{s2} denotes the buyer-side externality intensity for professional sellers, c_{s2} is the operational cost of professional sellers, and p_2 is the rate charged by the platform to professional sellers. In summary, the platform's profit function is

$$\pi = p_1 N_{s1} + p_2 N_{s2} - C(N_{s1}, N_{s2}) \quad (4)$$

$p_1 N_{s1}$ represents the revenue from the service fee of individual sellers, $p_2 N_{s2}$ represents the revenue from the service fee of professional sellers, and $C(N_{s1}, N_{s2})$ represents the platform's service cost. Under this formula, the platform's goal is to maximize its profit under the constraints of bilateral participation.

Under the constraints of free buyers and differentiated sellers, the optimal pricing of the platform should satisfy the following two formulas, for individual sellers:

$$p_1 = c_{s1} - a_{s1} N_b - a_{c1} / a_{N_{s1}} \quad (5)$$

The meaning of this is that individual sellers should be close to free pricing, the price should compensate for their transaction costs, and also compensate for the buyer's network externality. The optimal pricing formula for professional sellers is:

$$p_2^* = c_{s2} - a_{s2} N_b + \lambda \quad (6)$$

This indicates that professional sellers have strong payment ability and are not sensitive to the price, thus bearing more platform costs and subsidizing individual sellers.

5. Optimization of Xianyu services

5.1. Optimization of user purchase experience

According to the implementation difficulty from low to high, the measures are as follows: A tag-based filtering function enables sellers to select precise tags such as "personal seller" and "only self-pickup" when searching. Second, the platform can establish a dedicated traffic pool for individual users, allocating high-quality products of individual sellers to the basic traffic pool while isolating it from the traffic pool of professional sellers [10]. At the same time, Xianyu can further deepen the application of AI technology in the entire transaction chain of second-hand goods. Based on the buyer's consumption preferences and other information, it can actively push the products of qualified personal sellers. Finally, precise matching through interest circles can be achieved by

strengthening the recommendation of like-minded users, and based on the user's browsing history, interaction records, etc., by pushing the scarce products released by personal sellers, thereby enhancing the matching efficiency of interest-oriented buyers.

5.2. Optimization of user transaction experience

According to the implementation difficulty from high to low:

Mandatory Information Template: For key categories such as 3C and luxury goods, a standardized release template is launched, requiring the filling of grade of condition, usage frequency, repair records, etc. Additionally, AI will automatically identify and flag any missing information for timely completion.

Visualized Same-Item Market Prices: The search interface can directly display "average transaction price of the same item in the past 30 days" and other information, helping buyers quickly judge the rationality of the pricing and reduce the cost of negotiation.

5.3. Optimization of user after-sales experience

To optimize the user's purchase experience, a graded dispute handling mechanism is adopted, divided into three levels: small disputes, medium-large disputes, and complex disputes. Firstly, for small disputes, the platform uses AI to analyze chat records, product descriptions, and other relevant data, in order to resolve them. Medium-large disputes mainly focus on disputes with an order value of 500 yuan or more. For medium-large disputes, based on the customer's situation, a human specialist intervenes and provides clear guidance on returns and refunds, with clear rules on who bears the freight cost. Finally, complex disputes can be jointly handled by a third-party appraisal institution, which opens a fast-track channel for rights protection. When the product has quality problems or does not match the description, the platform will make a compensation to the buyer first, and then hold the seller accountable according to the platform rules, deducting the seller's deposit or restricting the trading authority. The platform makes the compensation to the buyer first, and then holds the seller accountable.

6. Conclusion

The core problem of the existing pricing mechanism of Xianyu is homogeneity in pricing, and differentiated pricing is the optimal solution that suits its bilateral market characteristics. The core pain point of the existing service system of Xianyu is high transaction friction and inefficient supply-demand matching. The optimization of the entire service chain needs to be carried out around the balance of bilateral market interests. The synergy effect of pricing and service strategies is key to Xianyu enhancing its platform competitiveness. The bilateral market theory has universal practical guiding value for second-hand C2C trading platforms. This paper still has deficiencies in empirical data. It only assumes that the platform is in a monopolistic competition state and lacks clear user stratification. Currently, only two types of users, individual sellers and professional sellers, are compared. In the future, Xianyu can use the model to analyze various data of goods, improve the pricing strategy, and achieve real-time dynamic pricing. By using AR and VR technologies for online inspection, it can reduce costs while upgrading the service strategy.

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